USER MANUAL

Longo programmable controller
LPC-2.DO6 module

Version 8

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User Manual

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STANDARDS AND PROVISIONS: Standards, recommendations, regulations and provisions of the country in which the devices will operate, must be considered while planning and setting up electrical devices. Work on 230 VAC network is allowed for authorized personnel only.
DANGER WARNINGS: Devices or modules must be protected from moisture, dirt and damage during transport, storing and operation.
WARRANTY CONDITIONS: For all modules LONGO LPC-2 – if no modifications are performed upon and are correctly connected by authorized personnel – in consideration of maximum allowed connecting power, we offer warranty for 24 months from date of sale to end buyer. In case of claims within warranty time, which are based on material malfunctions the producer offers free replacement. The method of return of malfunctioned module, together with description, can be arranged with our authorized representative. Warranty does not include damage due to transport or because of unconsidered corresponding regulations of the country, where the module is installed.

This device must be connected properly by the provided connection scheme in this manual. Misconnections may result in device damage, fire or personal injury.
Hazardous voltage in the device can cause electric shock and may result in personal injury or death.
NEVER SERVICE THIS PRODUCT YOURSELF!
This device must not be installed in the systems critical for life (e.g. medical devices, aircrafts, etc.).
If the device is used in a manner not specified by the manufacturer, the degree of protection provided by the equipment may be impaired.

Waste electrical and electronic equipment (WEEE) must be collected separately!

LONGO LPC-2 complies to the following standards:

- EMC:EN 61000-6-2 (EN 50082), EN 61000-6-4 (EN 50081)
- LVD: IEC 61131-2
- Vibrations and climatic-mechanical: EN 60068-2-6, EN 60068-2-27, EN 60068-2-29

Smarteh d.o.o. operates a policy of continuous development. Therefore we reserve the right to make changes and improvements to any of the products described in this manual without any prior notice.

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Longo programmable controller LPC-2.DO6 module

1 DESCRIPTION

LPC-2.DO6 is an eight relay digital output module with make contacts (NO). It can be used in a wide range of applications, but is not suitable to be use with heavy inductive loads (reflectors, contractors, motors etc...).

While using inductive loads it is recommended to use standard suppression circuits or in worse cases use another type of digital output (e.g. triac module like LPC-2.DO9).

LEDs indicate each relay's contacts state. If a LED is on, the module's connection pins for the correspondent relay are shorted (refer to the Table 5).

Module is powered from internal BUS.

NOTE: For proper system configuration and data allocation please refer to LPC Composer software help menu.

2 FEATURES

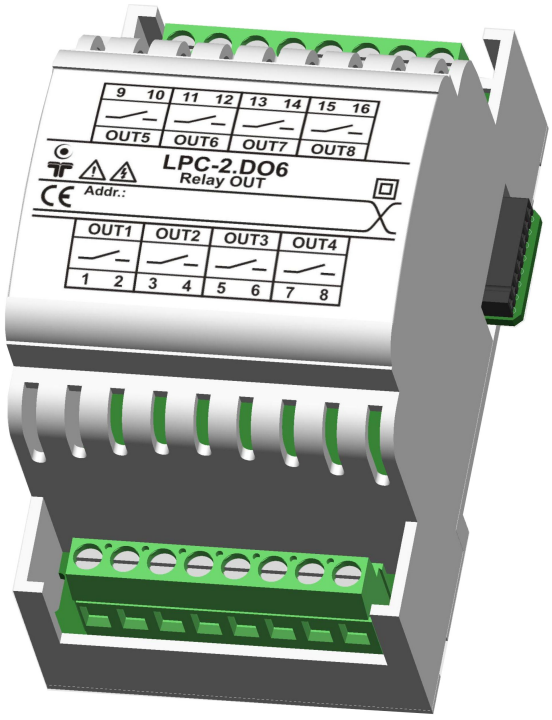


Figure 1: LPC-2.DO6 module

Table 1: Technical data
Eight relay digital output with make contacts (NO)
Flexible output for wide use of operation
Standard DIN EN50022-35 rail mounting

3 INSTALLATION

3.1 Connection scheme

Figure 2: Connection scheme

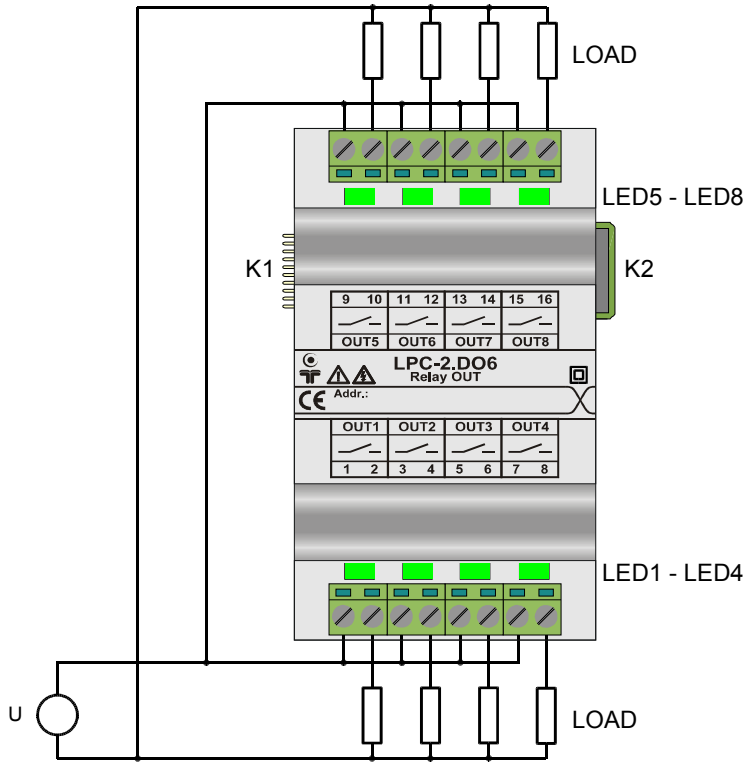


Table 2: OUT[1]

OUT1.1 OUT1.2	Voltage free contacts	Make contacts (NO)
OUT2.3 OUT2.4	Voltage free contacts	Make contacts (NO)
OUT3.5 OUT3.6	Voltage free contacts	Make contacts (NO)
OUT4.7 OUT4.8	Voltage free contacts	Make contacts (NO)
OUT5.9 OUT5.10	Voltage free contacts	Make contacts (NO)

1 Wires connected to the module must have cross sectional area at least 0.75 mm^2. Minimum temperature rating of wire insulation must be 85 °C.

Table 2: OUT		
OUT6.11 OUT6.12	Voltage free contacts	Make contacts (NO)
OUT7.13 OUT7.14	Voltage free contacts	Make contacts (NO)
OUT8.15 OUT8.16	Voltage free contacts	Make contacts (NO)

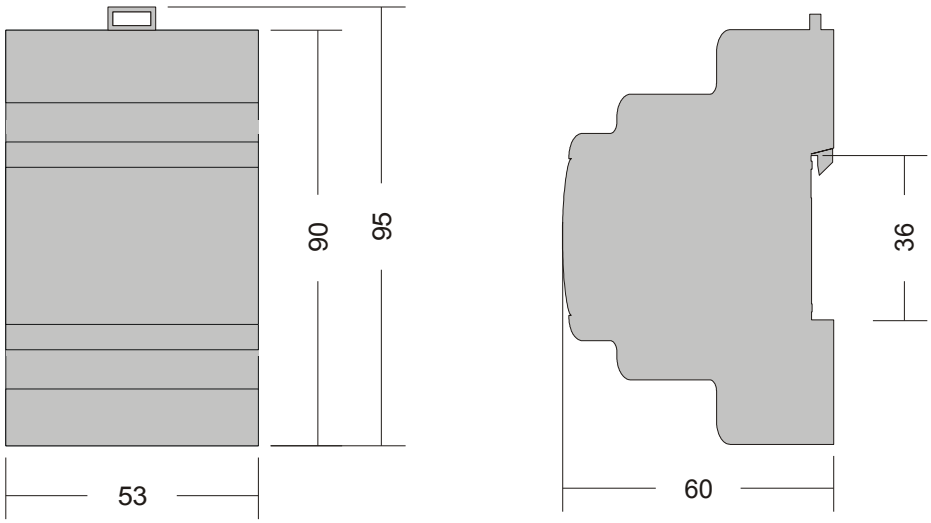
Table 3: K1		
Internal BUS	Data & DC power supply	Connection to I/O module

Table 4: K2		
Internal BUS	Data & DC power supply	Connection to I/O module

Table 5: LED1 – LED8		
Status	Digital output state	On: Output voltage present between OUT1.1 to OUT1.2 up to Output voltage present between OUT8.15 to OUT8.16 Off: Output voltage not present between OUT1.1 to OUT1.2 up to Output voltage not present between OUT8.15 to OUT8.16

3.2 Mounting instructions

Figure 3: Housing dimensions



- Dimensions in millimeters.

EXTERNAL SWITCH OR CIRCUIT-BREAKER AND EXTERNAL OVERCURRENT PROTECTION: The unit is allowed to be connected to installation with over current protection that has nominal value of 16 A or less.

RECOMMENDATION ON SWITCH OR CIRCUIT-BREAKER PROTECTION: There should be two poles main switch in the installation in order to switch off the unit. The switch should meet the requirements of standard IEC60947 and have a nominal value at least 6 A. The switch or circuit-breaker should be within easy reach of the operator. It should be marked as the disconnecting device for the equipment.

All connections, module attachments and assembling must be done while module is not connected to the main power supply.

Mounting instructions:

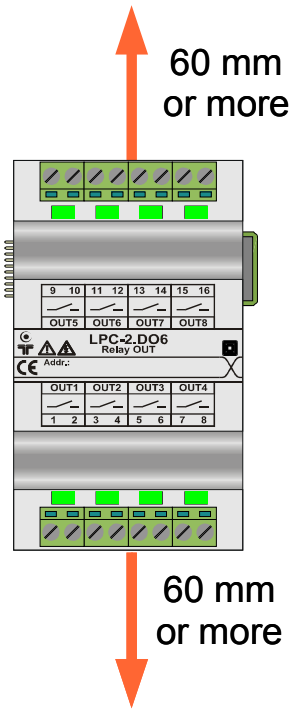
1. Switch OFF main power supply.
2. Mount LPC-2.DO6 module to the provided place inside an electrical panel (DIN EN50022-35 rail mounting).
3. Mount other LPC-2 modules (if required). Mount each module to the DIN rail first, then attach modules together through K1 and K2 connectors.
4. Connect digital output wires according to the connection scheme in Figure 2.
5. Switch ON main power supply.

Dismount in reverse order. For mounting/dismounting modules to/from DIN rail a free space of at least one module must be left on the DIN rail.

NOTE: LPC-2.MC3 main control module should be powered separately from other electrical appliance connected to LPC-2 system. Signal wires must be installed separately from power and high voltage wires in accordance with general industry electrical installation standard.

Outputs OUT1..OUT4 on the lower side of module form one group and outputs on the upper side, OUT5..OUT8, forms the other. Outputs in the same group are basic insulated while outputs from one group to another are double/reinforced insulated.
Mains voltage 230 V and 48 V SELV must not be connected in the same group of outputs. It is possible to connect mains voltage in one group and SELV in the other group.

Figure 4: Minimum clearances

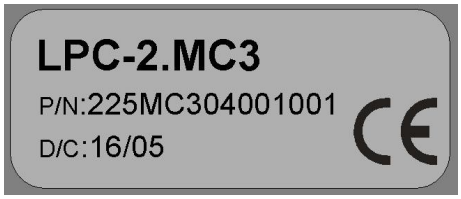


The clearances above must be considered before module mounting.

3.3 Module labeling

Figure 5: Labels on housing

Label 1 (MC3 sample):



Label 2 (MC3 sample):

Label 1 description:

1. **LPC-2.MC3** is the full product name.
2. **P/N:225MC3040001001** is the part number.
   - **225** – general code for product family,
   - **MC3** – short product name,
   - **04001** – sequence code,
     - 04 – year of code opening
     - 001 – derivation code
   - **001** – version code (reserved for future HW and/or SW firmware upgrades).
3. **D/C:16/05** is the date code.
   - **16** – week and
   - **05** – year of production.

Label 2 description:

1. **S/N:MC3-S9-0500000190** is the serial number.
   - **MC3** – short product name,
   - **S9** – user code (test procedure, e.g. Smarteh person xxx),
   - **0500000190** – year and current stack code,
     - 05 – year (last two cyphers)
     - 00000190 – current stack number; previous module would have the stack number 00000189 and the next one 00000191.

4 TECHNICAL SPECIFICATIONS

Table 6: Technical specifications	
Power supply	from internal BUS
Power consumption	2.75 W
Output	8 relay make contacts (NO), non-protected
Max. switching power per channel[2] (resistive load)	AC: 230 V, 3 A
	DC: 48 V, 1 A 30 V, 3 A
Min. permitted load per channel	100 mA at 5 VDC
Connection type	screw type connector for stranded wire 0.75 to 2.5 mm^2
Dimensions (L x W x H)	90 x 53 x 60 mm
Weight	140 g
Ambient temperature	0 to 50 °C
Ambient humidity	max. 95 %, no condensation
Maximum altitude	2000 m
Mounting position	vertical
Transport and storage temperature	-20 to 60 °C
Pollution degree	2
Over voltage category	II
Electrical equipment	Class II (double insulation)
Protection class	IP 30

* NOTE: Inductive loads are influencing the relay contacts by shortening their working life period. It is recommended to use standard suppression circuits or in worse cases use another type of digital output (e.g. triac).

2 This specification is valid only for products with serial number within 564.. 593 and all greater than 865. For products with different serial No. specification are: AC: 230V, 0.5A; DC 30V 1A

5 CHANGES

The following table describes all the changes to the document.

Date	V.	Description
1.7.2012	008	CGP General update and technical data update.
11.5.2010	007	Updated warranty permanence.
19.12.2009	006	Changed specification for the max. switching capability
13.6.2007	005	- improved output functioning in heavier conditions (noise, inductive loads)
23.2.2006	004	- Added output isolation description - Added output protection type description - Pollution degree changed to 2
30.6.2005	003	The initial version, issues as *LPC-2.DO6 module UserManual*.

6 NOTES